What Is Claimed Is:

1. A method of end-to-end clock recovery for media streaming, comprising:

inspecting a data packet sent by an application to determine a protocol type of the data packet and a location of a timestamp field in the data packet; and

if the data packet matches a pre-determined protocol type,

generating a new timestamp in real-time, the new timestamp accurately defining the time of transmission of the data packet;

inserting the new timestamp into the timestamp field of the data packet in place of an original timestamp; and

transmitting the data packet over a network to a receiver.

2. The method of claim 1, wherein the receiver, upon receiving the data packet, inspects the received data packet to determine whether the received data packet matches an identification criterion, wherein if the received data packet matches the identification criterion, the method further comprises

taking a sample of a local clock within the receiver at a time instance of receiving the data packet, wherein the sample of the local clock represents a local timestamp and wherein the time instance is associated with an arrival time of the received data packet; and

processing the local timestamp and the new timestamp in the received data packet to determine an error signal, wherein the error signal is used to adjust the local clock within the receiver.

3. The method of claim 2, wherein the identification criterion comprises at least one of the pre-determined protocol type, a MAC address, a data type, a source address, and a destination address.

4. The method of claim 2, wherein the local timestamp is sent along with the received data packet to a receiver application prior to processing the local timestamp and the new timestamp.

5. The method of claim 2, wherein if the received data packet is a mismatch, forwarding the mismatched received data packet to an application without further processing.

6. The method of claim 1, wherein the pre-determined protocol type comprises a Real-Time Protocol.

7. The method of claim 1, wherein the network comprises a data packet-based network.

8. The method of claim 1, wherein the network comprises one of a wired and wireless network.

9. The method of claim 1, wherein inspecting the data packet to determine a protocol type of the data packet and a location of the timestamp field in the data packet further comprises comparing a match string with corresponding bits in the data packet based on a mask string, wherein the match string represents a string of bytes that match the predetermined protocol type and the mask string indicates the bits in the match string that are to be compared with the corresponding bits of the data packet.

10. A method of clock recovery for media streaming comprising:

receiving a data packet from a transmitter over a network;

searching the received data packet to determine if the received data packet matches a pre-determined identification criterion and to locate a timestamp field within the received data packet as the received data packet is sent to a media device;

if the received data packet matches the pre-determined identification criterion,

generating a local timestamp in real-time indicative of the time instance in which the received data packet arrived;

appending the local timestamp to the received data packet to be sent to the media device; and

determining an error signal for adjusting a frequency of a local clock using the local timestamp and a timestamp extracted from the received data packet.

11. The method of claim 10, wherein the data packet received from the transmitter comprises an updated timestamp, the updated timestamp accurately indicating a time when the data packet was transmitted.

12. The method of claim 10, wherein identification criterion comprises at least one of a protocol type, a MAC address, a data type, a source address, and a destination address.

13. The method of claim 10, wherein a media device comprises a digital device capable of processing digital media content.

14. The method of claim 10, wherein a media device comprises at least one of a personal computer, a workstation, a laptop, and a personal digital assistant.

15. The method of claim 10, wherein searching the received data packet to determine if the received data packet matches a pre-determined identification criterion and to locate a timestamp field within the received data packet further comprises comparing a match string with corresponding bits in the received data packet based on a mask string, wherein the match string represents a string of bytes that match the predetermined identification criterion and the mask string indicates the bits in the match string that are to be compared with the corresponding bits of the received data packet.

16. The method of claim 10, wherein if the received data packet is a mismatch to the pre-determined identification criterion, forwarding the received data packet to the media device without further processing within the receiver.

17. The method of claim 10, wherein the pre-determined identification criterion comprises a pre-determined protocol type for a Real-Time Protocol.

18. The method of claim 10, wherein determining an error signal for adjusting a frequency of a local clock using the local timestamp and a timestamp extracted from the received data packet further comprises:

processing the local timestamp and the timestamp extracted from the received data packet;

determining an error signal between the processed local timestamp and the processed timestamp extracted from the received data packet; and

using the error signal as a feedback signal to adjust the frequency of the local clock in the receiver to synchronize the local clock with a clock in the transmitter.

19. The method of claim 18, wherein processing the local timestamp and the timestamp extracted from the received data packet comprises one or more of low-pass filtering, jitter filtering, and timing correction techniques.

20. An article comprising: a storage medium having a plurality of machine accessible instructions, wherein when the instructions are executed by a processor, the instructions provide for inspecting a data packet sent by an application to determine a protocol type of the data packet and a location of a timestamp field in the data packet; and

if the data packet matches a pre-determined protocol type,

generating a new timestamp in real-time, the new timestamp accurately defining the time of transmission of the data packet;

inserting the new timestamp into the timestamp field of the data packet in place of an original timestamp; and

transmitting the data packet over a network to a receiver.

21. The article of claim 20, wherein the receiver, upon receiving the packet, inspects the received data packet to determine whether the received data packet matches an identification criterion, wherein if the received data packet matches the identification criterion, the article further comprises instructions for

taking a sample of a local clock within the receiver at a time instance of receiving the data packet, wherein the sample of the local clock represents a local timestamp and wherein the time instance is associated with an arrival time of the received data packet; and

processing the local timestamp and the new timestamp in the received data packet to determine an error signal, wherein the error signal is used to adjust the local clock within the receiver.

22. The article of claim 21, wherein the identification criterion comprises at least one of the pre-determined protocol type, a MAC address, a data type, a source address, and a destination address.

23. The article of claim 21, wherein the local timestamp is sent along with the received data packet to a receiver application prior to processing the local timestamp and the new timestamp.

24. The article of claim 21, wherein if the received data packet is a mismatch, forwarding the mismatched received data packet to an application without further processing.

25. The article of claim 20, wherein the pre-determined protocol type comprises a Real-Time Protocol.

26. The article of claim 20, wherein the network comprises a packet-based network.

27. The article of claim 20, wherein the network comprises one of a wired and wireless network.

28. The article of claim 20, wherein instructions for inspecting the data packet to determine a protocol type of the data packet and a location of the timestamp field in the data packet further comprises instructions for comparing a match string with corresponding bits in the data packet based on a mask string, wherein the match string represents a string of bytes that match the predetermined protocol type and the mask

string indicates the bits in the match string that are to be compared with the corresponding bits of the data packet.

29. An article comprising: a storage medium having a plurality of machine accessible instructions, wherein when the instructions are executed by a processor, the instructions provide for receiving a data packet from a transmitter over a network;

searching the received data packet to determine if the received data packet matches a pre-determined identification criterion and to locate a timestamp field within the received data packet as the received data packet is sent to a media device;

if the received data packet matches the pre-determined identification criterion,

generating a local timestamp in real-time indicative of the time instance in which the received data packet arrived;

appending the local timestamp to the received data packet to be sent to the media device; and

determining an error signal for adjusting a frequency of a local clock using the local timestamp and a timestamp extracted from the received data packet.

30. The article of claim 29, wherein the data packet received from the transmitter comprises an updated timestamp, the updated timestamp accurately indicating a time when the data packet was transmitted.

31. The article of claim 29, wherein identification criterion comprises at least one of a protocol type, a MAC address, a data type, a source address, and a destination address.

32. The article of claim 29, wherein a media device comprises a digital device capable of processing digital media content.

33. The article of claim 29, wherein a media device comprises at least one of a personal computer, a workstation, a laptop, and a personal digital assistant.

34. The article of claim 29, wherein instructions for searching the received data packet to determine if the received data packet matches a pre-determined identification criterion and to locate a timestamp field within the received data packet further comprises instructions for comparing a match string with corresponding bits in the received data packet based on a mask string, wherein the match string represents a string of bytes that match the predetermined identification criterion and the mask string indicates the bits in the match string that are to be compared with the corresponding bits of the received data packet.

35. The article of claim 29, wherein if the received data packet is a mismatch to the pre-determined identification criterion, further comprising instructions for forwarding the received data packet to the media device without further processing.

36. The article of claim 29, wherein the pre-determined identification criterion comprises a pre-determined protocol type for a Real-Time Protocol.

37. The article of claim 29, wherein instructions for determining an error signal for adjusting a frequency of a local clock using the local timestamp and a timestamp extracted from the received data packet further comprises instructions for processing the local timestamp and the timestamp extracted from the received data packet;

determining an error signal between the processed local timestamp and the processed timestamp extracted from the received data packet; and

using the error signal as a feedback signal to adjust the frequency of the local clock in the receiver to synchronize the local clock with a clock in the transmitter.

38. The article of claim 37, wherein instructions for processing the local timestamp and the timestamp extracted from the received data packet comprises instructions for one or more of low-pass filtering, jitter filtering, and timing correction techniques.

39. A network adapter for clock recovery comprising:

a transmitter to transmit data packets over a network, the transmitter comprising a transmit match filter coupled to a transmit timestamp generator and insertion circuit, the transmit match filter used to determine whether the data packets being transmitted match a pre-determined protocol and to locate a timestamp field within the data packets, the timestamp generator and insertion circuit used to generate a transmit

timestamp when it is determined that the data packets match the pre-determined protocol and to insert the timestamp into the timestamp field in real-time as the data packets are being transmitted over the network.

40. The network adapter of claim 39, further comprising:

a receiver to receive the data packets transmitted over the network, the receiver comprising a receiver match filter coupled to a local timestamp generator circuit, the receiver match filter used to determine whether the received data packets match the pre-determined protocol and to locate the timestamp field within the received data packets, the local timestamp generator circuit used to generate a local timestamp in real-time when the timestamp field is located.

41. The network adapter of claim 40, wherein the local timestamp and the transmit timestamp are processed to determine an error signal, wherein the error signal is used to correct a local clock within the local timestamp generator circuit to synchronize the local clock with a transmit program clock within the transmit timestamp generator and insertion circuit.

42. The network adapter of claim 39, wherein the transmit timestamp generator and insertion circuit comprises a transmit program clock coupled to a transmit timestamp counter; a transmit snapshot register; and a switch, wherein the transmit snapshot register is coupled to the transmit match filter, the transmit timestamp counter and the switch, wherein an indication from the transmit match filter that a match has

occurred enables the transmit snapshot register to obtain a snapshot of the timestamp counter as the transmit timestamp and enables the switch to connect the transmit snapshot register to an output path to allow the transmit timestamp to be inserted in the timestamp field as the data packets are being transmitted over the network.

43. The network adapter of claim 42, wherein the snapshot of the transmit timestamp counter is based on a time of the transmit program clock.

44. The network adapter of claim 40, wherein the receiver timestamp generator comprises a local clock coupled to a receiver timestamp counter, and a receiver snapshot register, wherein the receiver snapshot register is coupled to the receiver match filter and the receiver timestamp counter, wherein an indication from the receiver match filter that a match has occurred enables the receiver snapshot register to obtain a snapshot of the receiver timestamp counter as the local timestamp, wherein the snapshot of the receiver timestamp counter is based on a time of the local clock.